

I claim:

1. A barrel assembly for a weapon, said barrel assembly including:
  - a barrel;
  - 5 a plurality of projectile assemblies axially disposed in end to end abutting relationship within said barrel for operative sealing engagement with the bore of the barrel, each projectile including a projectile head and an integral cylindrical spacer portion extending axially and rearwardly from said projectile head;
  - 10 discrete propellant charges accommodated within said cylindrical spacer portion for propelling respective projectile assemblies sequentially through the muzzle of the barrel;
  - ignition means for igniting said discrete propellant charges; and
  - control means for selectively and sequentially actuating the ignition means.
- 15 2. The barrel assembly as claimed in Claim 1 wherein a rearward end of the cylindrical spacer portion is adapted to abut the forward or leading end of the subsequent projectile assembly.
3. The barrel assembly as claimed in Claim 1 wherein the cylindrical spacer portion  
20 is expandable into operative sealing contact with said bore of the barrel.
4. The barrel assembly as claimed in Claim 3 wherein the interior of the cylindrical spacer portion is structurally reinforced to prevent excessive radial expansion of the projectile.  
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5. A barrel assembly for a weapon, said barrel assembly including:
  - a barrel having a muzzle;
  - a plurality of projectiles axially disposed in end to end abutting relationship within said barrel, each projectile including a projectile head and a trailing cylindrical  
30 extension in close proximity with the barrel;
  - an internal wedging surface, at or adjacent the trailing end of said cylindrical extension which accommodates a tapered nose part of the following projectile, for

expanding said trailing end into enhanced sealing engagement with the barrel upon engagement of said wedging surface with said tapered nose part;

discrete propellant charges for propelling respective projectiles sequentially through the muzzle of said barrel;

5 ignition means disposed externally of the barrel for igniting said discrete propellant charges; and

control means for selectively and sequentially actuating said ignition means.

6. The barrel assembly as claimed in Claim 5 wherein said trailing cylindrical  
10 extension at least partly defines a propellant space therein.

7. The barrel assembly as claimed in either Claim 5 or Claim 6 wherein propellant charges surround the noses of respective following projectiles externally of the trailing cylindrical extension.

15 8. The barrel assembly as claimed in Claim 5 wherein each projectile assembly includes an internal spacer which extends through the trailing cylindrical extension from the projectile head to abut or cooperate with the inserted projectile head of a following projectile, whereby axial compressive loads applied to a stack of abutting  
20 projectiles arranged in sealing engagement within the barrel may be resisted.

9. The barrel assembly as claimed in Claim 5 wherein axial compressive loads applied to a stack of abutting projectiles arranged in sealing engagement within the barrel may be distributed back to said barrel from individual projectiles through their  
25 engagement with the barrel.

10. The barrel assembly as claimed in claim 5 wherein the trailing cylindrical extension is a thin cylindrical rear extension of the projectile head.

30 11. The barrel assembly as claimed in Claim 8 wherein the internal spacer includes support members for the trailing cylindrical extension.

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12. The barrel assembly as claimed in either Claim 8 or Claim 11 wherein the internal spacer is integral with the head and trailing cylindrical extension.

13. The barrel assembly as claimed in either Claim 8 or Claim 11 wherein the  
5 internal spacer is formed separately from the head and trailing cylindrical extension.

14. The barrel assembly as claimed in Claim 8 wherein, upon loading respective  
projectiles into the barrel and thereafter causing an axial displacement of the  
projectiles causes radial expansion of said trailing ends thereof to enhance the  
10 sealing engagement between the projectiles and the barrel.

15. The barrel assembly as claimed in Claim 14 wherein the axial displacement is  
suitably caused to said projectiles individually, subsequent to each projectile being  
loaded into the barrel.

16. The barrel assembly as claimed in either Claim 14 or Claim 15 wherein the  
radial expansion into enhanced sealing engagement with the barrel is limited  
through engagement between the penetrating nose of a following projectile and the  
internal spacer.

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